



**Thermo Scientific**  
**Touchscreen**  
**User Interface**

for Sorvall LYNX Superspeed Centrifuges

**Instruction Manual**

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## Screen Views

The following manual describes the touchscreen or graphical user interface (GUI) for Thermo Scientific™ Sorvall™ LYNX superspeed centrifuges.

### Contents

- “Main Screen” on page 1-1
- “Lighthouse Mode” on page 1-5

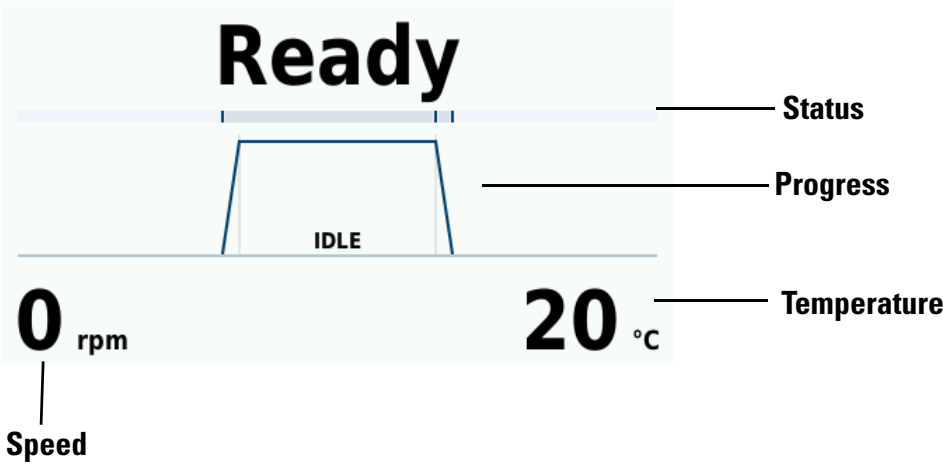
## Main Screen

The main screen is subdivided into the following sections:



Status

The status of the centrifugation process is displayed at the top of the main screen.



<b>Status:</b>	In the Time mode, the remaining time for the centrifugation process is shown here. In the Hold mode, the elapsed time is displayed.
<b>Progress:</b>	The curve diagram is divided into the sections Accelerate, Centrifugation and Deceleration.
<b>Temperature:</b>	The current temperature in the rotor chamber is shown here.
<b>Speed:</b>	The current speed of the rotor is shown here.

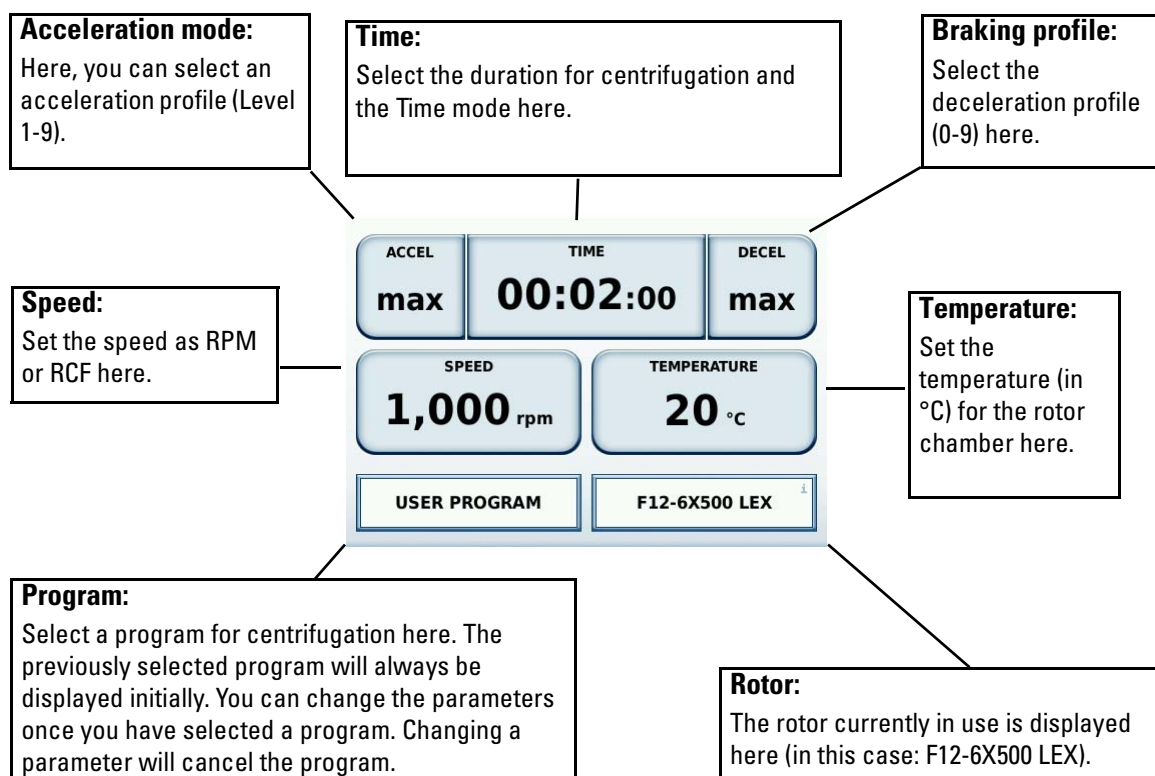
The remaining time is shown for a centrifugation process in progress. The progress bar is used to determine in which phase the centrifugation process is currently in. The acceleration or deceleration curve corresponds to the selected profile (see “Acceleration / Deceleration Profile” on page 3-6).

Possible statuses:	
Ready	Centrifugation can be started.
Door open	The centrifuge door is open.
Error	An error has occurred.
Stopped	Centrifugation has been halted manually.
Completed	Centrifugation or precooling has been successfully completed.
No rotor	No rotor has been placed in the centrifuge.

Progress	Status
	<p>The rotor has been installed and the centrifuge door is closed; precooling in progress. The remaining time for cooling is displayed. (See <a href="#">“Precooling”</a> on <a href="#">page 3-2</a>).</p>
	<p>The rotor is in place and the centrifuge door is closed; press the button  to start centrifugation.</p>
	<p>Centrifugation begins with the acceleration phase. The displayed curve corresponds to the selected profile. The time remaining for the complete centrifugation (without deceleration phase) is displayed (see <a href="#">“Acceleration / Deceleration Profile”</a> on <a href="#">page 3-6</a>).</p>
	<p>Centrifugation is taking place at the set speed. The time remaining for centrifugation is displayed.</p>
	<p>Centrifugation has been successfully completed. The centrifuge is in the deceleration phase. The displayed curve corresponds to the selected profile. The centrifuge door cannot be opened until the rotor has come to a complete stop. (See <a href="#">“Acceleration / Deceleration Profile”</a> on <a href="#">page 3-6</a>).</p>
	<p>Centrifugation has been successfully completed. The rotor has come to a complete stop and the centrifuge door can be opened.</p>

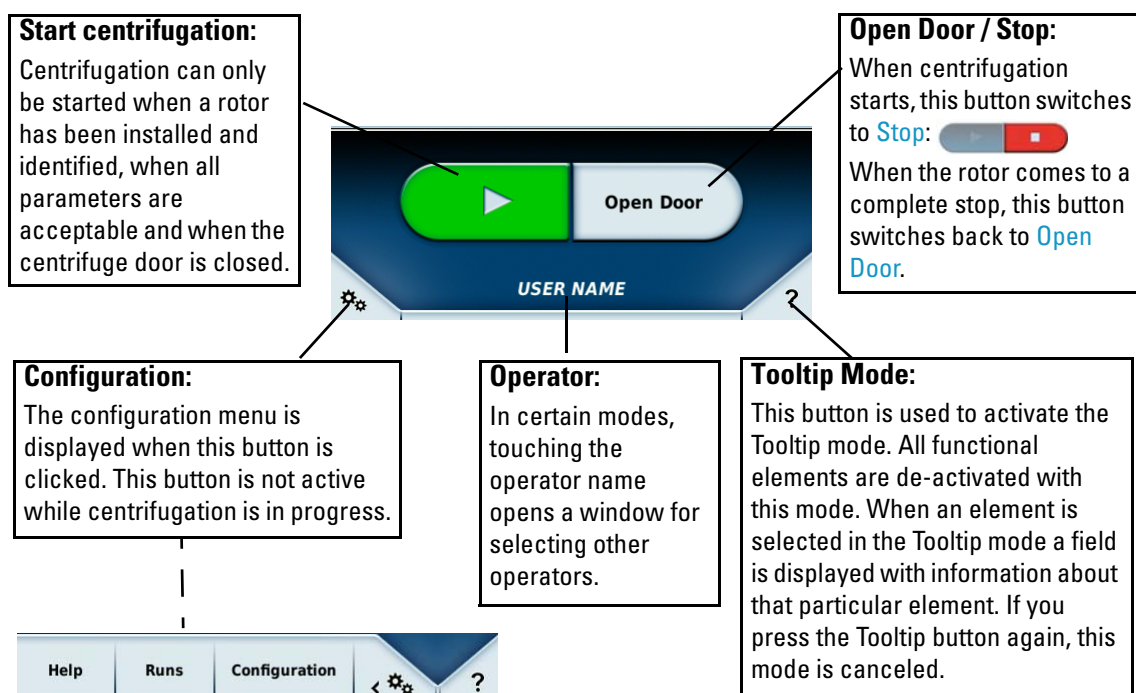
## Parameters

You can set the setpoints for centrifugation in the Parameters section (for more information see [“Entering Parameters”](#) on [page 3-1](#)). Touch one of the buttons to open a new window to enter the corresponding value.



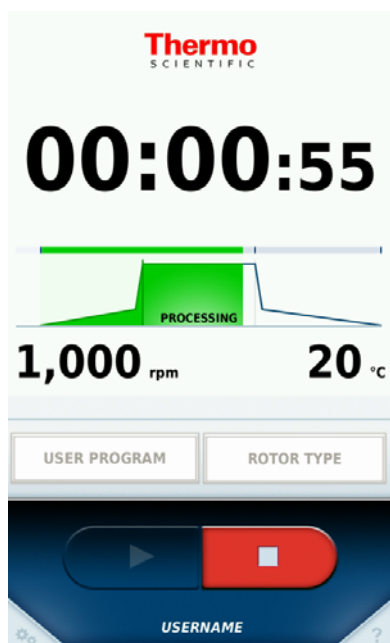
## Control & Configuration

In this section you can start and halt centrifugation. You can also define other settings, such as for the centrifugation programs, in this section (for detailed information refer to the Section “[Programs](#)” on [page 4-3](#)). If you are not sure of the general use of a button you can use the Tooltip mode, which provides information about all of the operator control elements (see “[Tooltip Mode](#)” on [page 5-1](#)).



## Lighthouse Mode

The Lighthouse mode is activated while centrifugation is in progress if you do not touch the screen for at least 30 seconds. The buttons for parameters are concealed when the Lighthouse mode is active. The status for centrifugation is displayed larger instead so that you can read the remaining time for centrifugation from a good distance.

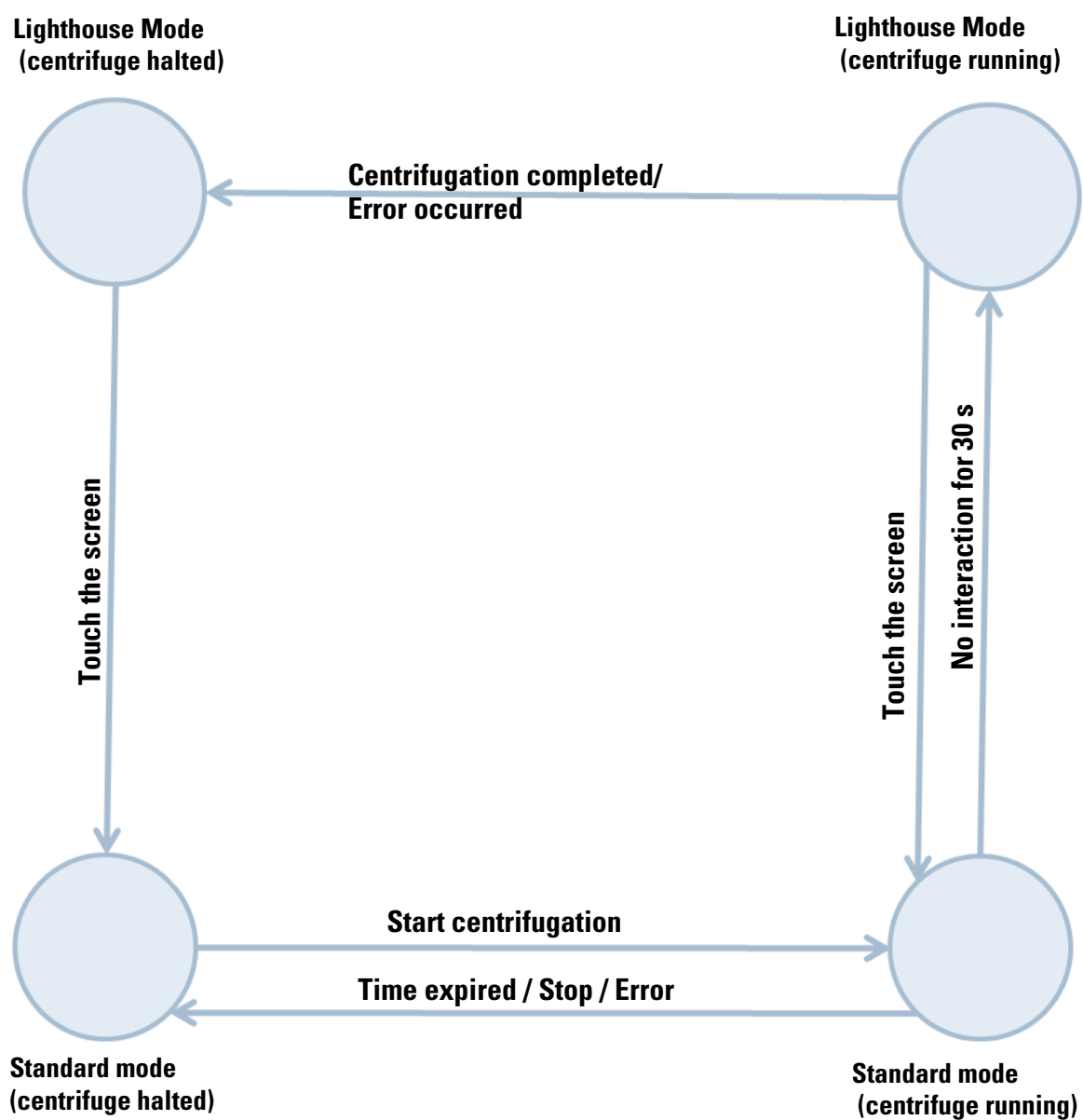


### Lighthouse Mode:

Centrifugation can be halted at any time in the Lighthouse mode by touching the **Stop** button. You can exit this mode by simply touching the screen.

The **Stop** button is the only button active in the Lighthouse mode in order that you can manually halt centrifugation at any time. All other buttons are de-activated.

The diagram below illustrates graphically the statuses for the main screen, such as the switching from the Standard to the Lighthouse mode. The Standard mode is shown at the bottom, both with the centrifuge in motion and at standstill; the Lighthouse mode is shown at the top of the diagram. If the centrifuge is stopped manually it switches immediately from the Lighthouse mode back to the Standard mode. Normally you must touch the screen to switch back to the Standard mode





## Centrifugation

You can define the parameters for centrifugation via the main screen (see section “[Entering Parameters](#)” on [page 3-1](#)). Touching a button opens a corresponding window in which you can enter the new value. A rotor does not have to be already in use to enter this data. The speed is adjusted automatically to the maximum when a rotor is installed.

As an alternative to manual input of parameters you can also use a program in which values have already been defined. Refer to section “[Programs](#)” on [page 4-3](#) for information on how to define and activate a program.

For example, you can select the predefined program **PRE-COOLING** (for details see “[Precooling](#)” on [page 3-2](#)).

Centrifugation can be started when all of the input parameters are acceptable, when a rotor is in use and when the door is closed.

If an error occurs, a large red X will be displayed in the main screen in the Lighthouse mode. Touch the screen to obtain information about the exact information about the error.

It is only possible to open the centrifuge door using the **Open Door** button in the main screen, if the centrifuge is at standstill.

“[Device Settings](#)” on [page 4-17](#) contains information about activation and de-activation of the acoustic signal on completion of centrifugation.

## Entering Parameters

### Contents

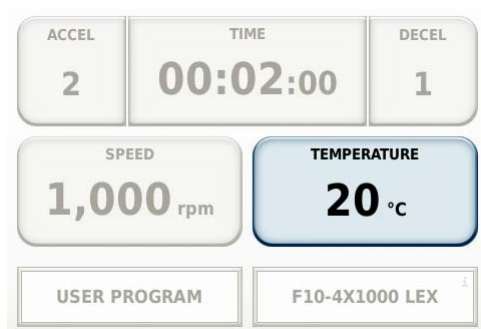
- “Temperature” on page 3-1
- “Precooling” on page 3-2
- “Time” on page 3-3
- “Speed and RCF Value” on page 3-4
- “Acceleration / Deceleration Profile” on page 3-6

You can change any parameter prior to and during a centrifugation process.

## Temperature

You can set the temperature using the **Temperature** button in the main screen.

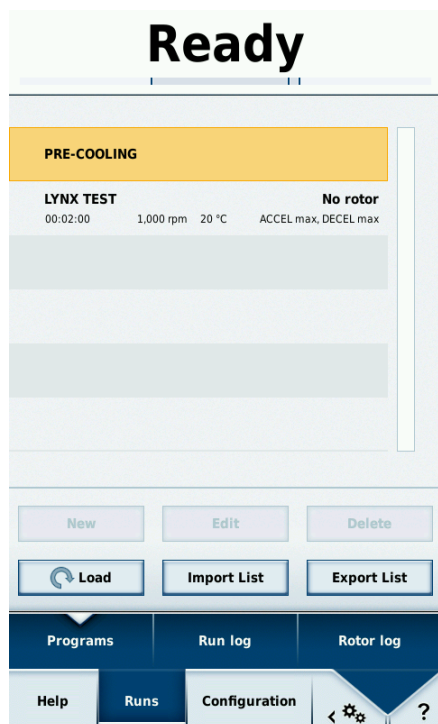
When you press this button, a window opens in which you can enter the temperature (in °C). Either positive or negative values can be entered here. The temperature limits (upper/lower) for the centrifuge may not be exceeded, however. An error message is issued to indicate any unacceptable values.



When centrifugation is in progress, the temperature will be adjusted immediately to the newly defined temperature by means of cooling. This does not affect the duration of centrifugation.

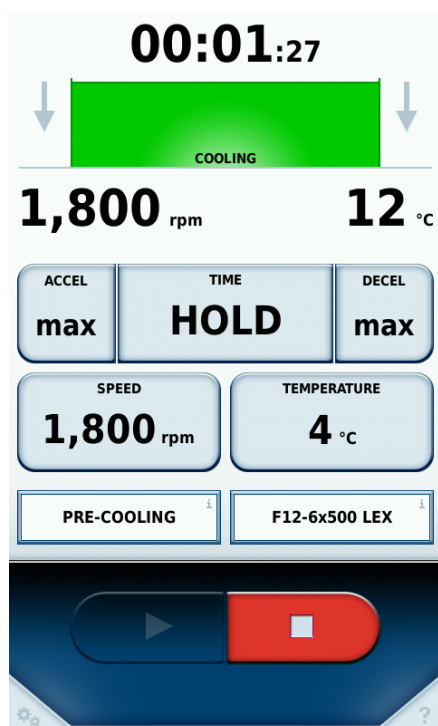
## Precooling

Precooling is used to bring a rotor to a desired temperature prior to centrifugation of a sample. Precooling is defined as a set program and is called up via the configuration menu “[Programs](#)” on [page 4-3](#). This program is activated using the button **Load**. In the main screen you can then set the required target temperature. The settings for acceleration and deceleration profile, time and speed are set from the centrifuge. If the values are changed, the precooling program is exited.



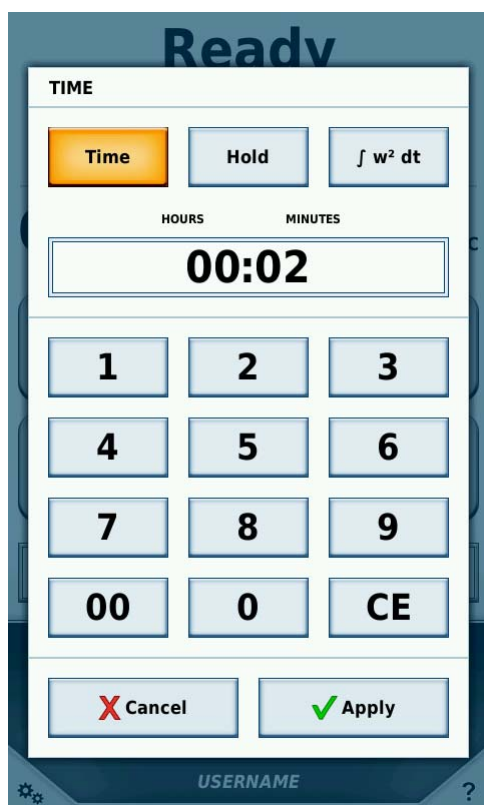
### Precooling:

**PRE-COOLING** (marked line) is stored as a fixed program. Use the **Load** button to apply the program. You can set the target temperature after this in the main screen.

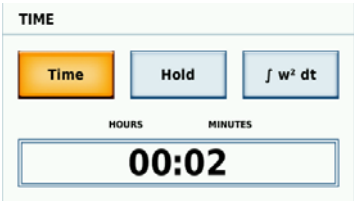


# Time

You can set the time for the centrifugation process using the **Time** button in the main screen. When you click the **Time** button, a window opens in which you can enter the required time. The **Time**, **ACE** ( $w^2 dt$ ) or **HOLD** modes can be selected. The selected mode is clearly displayed in the main screen. The selected mode is displayed on the **Time** button. As shown in the diagram below, the **Time** mode has been activated.



Time	HOLD Run	ACE ( $w^2 dt$ )
Duration of centrifugation; input as hh:mm. The set time is counted down when centrifugation is in progress. Initial value: Defined duration hh:mm:00	Unlimited duration of centrifugation. The time elapsed so far is displayed while centrifugation is in progress. Initial value: 00:00:00	Accumulated Centrifugal Effect Input as x.y * 10 <sup>z</sup> X: Whole digits Y: Decimal numbers Z: Power



If you change the time setting while centrifugation is in progress the newly defined countdown is restarted. Any time that has already elapsed is disregarded and the acceleration phase is skipped.



**Centrifugation in progress:**  
The centrifugation period, including acceleration, is 1 minute.

**Time change while centrifugation in progress:**  
The centrifugation time is changed to 2 minutes.

**Countdown restarting:**  
The new centrifugation time is now 2 minutes.

## Speed and RCF Value

You can set the **Speed** and the **RCF value** using the **Speed** button in the main screen. When you click this button a window opens in which you can enter the **Speed** as **rpm** or the **RCF Value**.



rpm	RCF
Revolutions per minute	Relative centrifugal force, Units: xg

---

**SPEED**

RPM
RCF

**2,500 rpm**

Maximum set value: 12,000 rpm

**G-FORCE**

RPM
RCF

**14,000 xg**

Maximum set value: 24,471 xg

The defined **speed** may not exceed the maximum **speed** of the rotor being used. A notice is given below the button for the defined **speed** indicating the maximum permissible **speed** for the rotor. If the entered value for the **speed** exceeds the value entered for the rotor, a window is displayed with an error message indicating that the entered **speed** must be matched to the maximum permissible **speed** for the rotor.

## Ready

**SPEED**

RPM
RCF

**1,000 rpm**

Maximum set value: 10,500 rpm

1

2

3

4

5

6

7

8

9

000

0

CE

X Cancel
✓ Apply

⚙
USERNAME
?

If the **speed** is changed while centrifugation is in progress, the current **speed** is adjusted immediately to the new value (by means of acceleration/deceleration). The newly set **speed** then applies for the remaining duration of centrifugation.

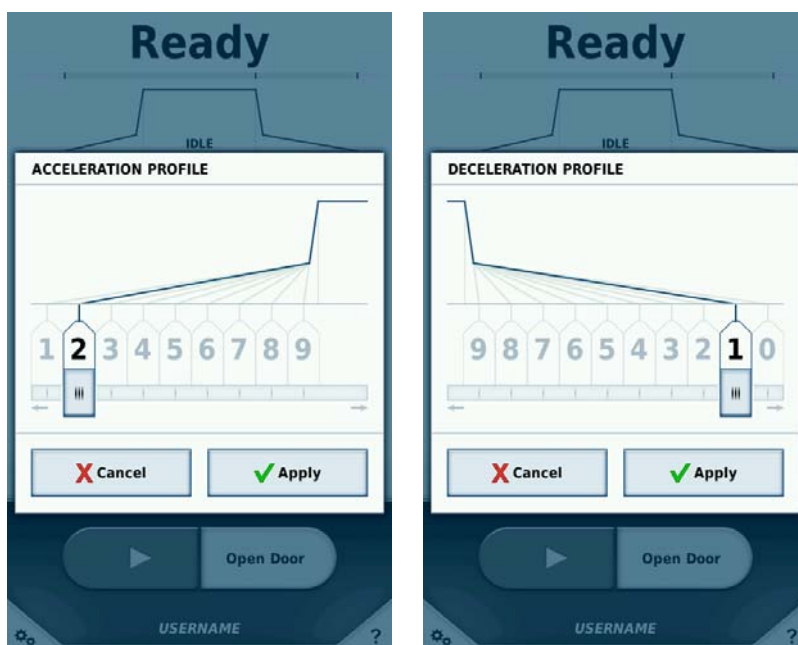
## Acceleration / Deceleration Profile

There are 9 profiles available for acceleration (1-9) and ten for deceleration (0-9). You can select the acceleration / deceleration profiles via the main screen.

The image shows a digital display with several parameter fields. At the top, there are three boxes: 'ACCEL' with the value '2', 'TIME' with '00:02:00', and 'DECEL' with '1'. Below these are two boxes: 'SPEED' with '1,000 rpm' and 'TEMPERATURE' with '20 °C'. At the bottom, there are two boxes: 'USER PROGRAM' and 'F10-4X1000 LEX'.

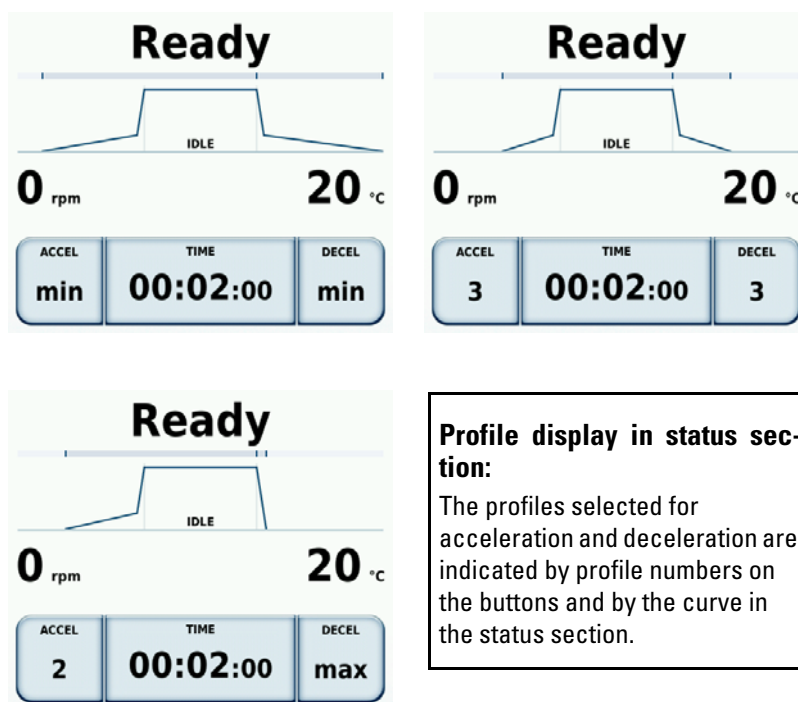
After clicking on the appropriate button a window opens in which the required profile can be selected by moving a slide selector over it. You can also define a profile by direct point and select. Touch the **Apply** button to define the profile for the next centrifugation process, or cancel your selection using **Cancel**.

The profile with the smallest number has the most gradual slope and is indicated by **min**; the profile with the number 9 has the steepest slope and is denoted by **max**. In the main screen, the current profile is indicated by the number on the Profile button and the slope (curve) in the Status section (see “Status” on page 1-2). Presentation of the profiles must be taken symbolically. The exact slope is complex and is a function of the rotor being used and the set speed. The curve that is displayed represents an abstract simplification for distinguishing between the different profiles (gradual slope – steep slope).



### Acceleration, Brake:

Select the profile by clicking the slide on the screen. You can also move the slide on the screen on both ends using your finger.



If a profile is changed while centrifugation is in progress, the new profile is applied immediately. acceleration or deceleration of centrifugation is modified accordingly.



# Configuration

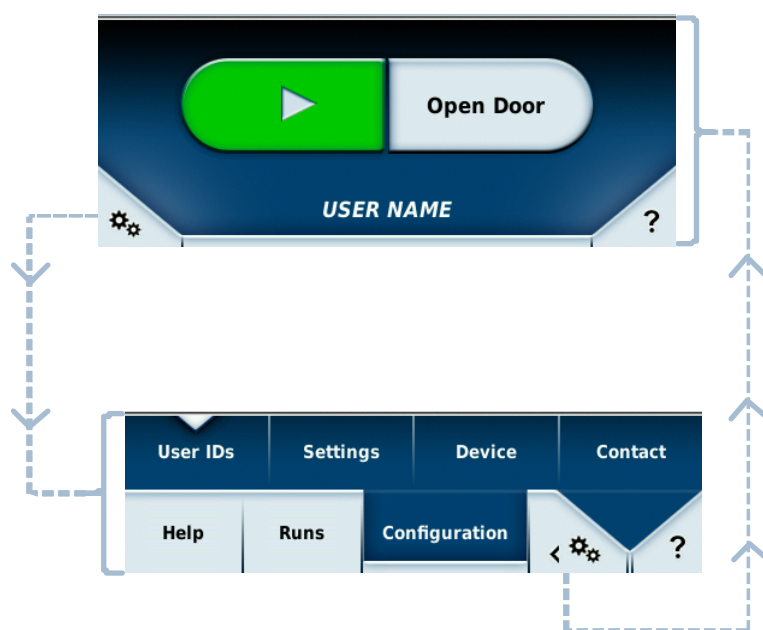
## Contents

- “Help” on page 4-2
- “Runs Configuration” on page 4-3
- “Settings” on page 4-8

You can open the configuration menu using the button at the bottom left-hand corner of the main screen. This menu is subdivided into the sections **Help**, **Runs** and **Configuration**. Touching one of these buttons will open a second level with the corresponding submenus.

All of the sections of the configuration menu can be viewed by any user. However, to make or change any settings a PIN must be entered for authentication. Details about distribution and assignment of user rights are given in “User Management” on page 4-9.

The **Configuration** submenu is closed automatically if there is no interaction with the user for 30 seconds. The **Manual** and **Training videos** submenus are closed automatically if there is no interaction with the user for 60 seconds. The submenu will not be closed automatically when a training video is being played. Any input or changes which have not been saved up to then will be lost. Therefore, always be sure to save any changes at once.



### Opening the configuration menu:

The buttons for centrifugation are covered while the configuration menu is open. The contents of the selected menu are displayed instead.

# Help

Help and assistance for a number of areas is provided in this menu. The first two submenus **Training Videos** and **Manual** contain helpful videos and informative texts.

Values for two different rotors can be converted in the **Calculators** submenu. First select a rotor on the left (a Thermo Scientific rotor or from other manufacturers) and then select a Thermo Scientific rotor for Thermo Scientific Sorvall LYNX centrifuges. All of the parameters input for the rotor on the left will then be converted automatically for the rotor on the right. Besides selecting the rotors, you can also enter speeds and times for conversion for the particular centrifugation.

Ready

Select Rotor 1

Select Rotor 2

Sorvall

F8-6X1000Y

MaterialCarbon Fiber

Capacity6 x 1000 ml

Tube Angle20°

Speed max8,500 rpm

Thermo Scientific

A27-8X50

MaterialAluminum

Capacity8 x 50ml

Tube Angle34°

Speed max27,000 rpm

SPEED rpm8,500 rpm

8,500 rpm

SPEED rpm27,000 rpm

27,000 rpm

TIME

00:30

TIME

00:02

SPEED rcf15,900 xg

15,824 xg

SPEED rcf87,207 xg

87,207 xg

k-FACTOR

4,496

k-FACTOR

408

Training Videos

Manual

Calculators

Help

Runs

Configuration

< ⚙ || ?

## Runs Configuration

You can define settings for programs and for log processes in the **Runs** section of the configuration menu.

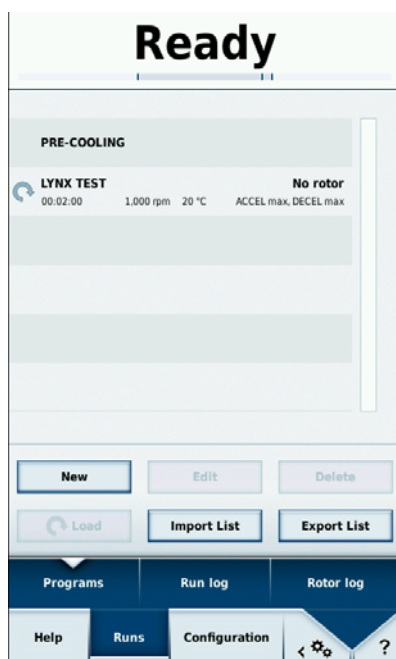
### Programs

You can save set values for a centrifugation process in a centrifugation program. Avoid multiple, identical input for similar centrifugation runs by defining the values in advance in individual programs. Programs may only be administered when the rotor is at standstill.

**PRE-COOLING** is stored as a default program and cannot be deleted. You can only change the target temperature in this program; all other values are calculated automatically when **PRE-COOLING** is loaded. For more details refer to “Precooling” on page 3-2.

The list of available programs is given in the first submenu **Programs** in the **Runs** menu. If the program list should exceed the length of the screen you can use the pager to easily navigate through the individual pages of the list. A maximum of 120 programs can be contained in the list. The list can also be called up in the main screen by touching the button with the name of the program.

If a program has already been selected, a blue arrow is displayed in front of the program name. Before that program can be activated, you must first select a program by touching the display showing the program name and the parameters. Touch the **Load** button to activate the particular program. Now, the blue arrow is displayed in front of the selected program indicating that it is activated.



Use the button **New** to create a new program. When you touch this button the standard program editor is displayed that you can use to set all relative parameters for centrifugation.

The screenshot displays the 'PROGRAM EDITOR' window. At the top, a status bar shows 'IDLE'. Below this, a diagram of a rotor is visible. The main configuration area contains several fields: 'ACCEL' set to 'max', 'TIME' set to '00:02:00', 'DECEL' set to 'max', 'SPEED' set to '1,000 rpm', and 'TEMPERATURE' set to '20 °C'. Below these, the 'PROGRAM NAME' field contains 'F12-6X500 LEX'. At the bottom of the editor are 'Cancel' and 'Apply' buttons. The bottom of the screen shows a navigation bar with tabs for 'Programs', 'Run log', and 'Rotor log', and a bottom row with 'Help', 'Runs', 'Configuration', and a settings icon.

The rotor that is currently in use in the centrifuge will be assigned automatically to the program. Note here that the parameters that are entered may not exceed the limits for the rotor. A program can still be defined, even if no rotor is currently in use. The parameters will be checked as soon as the program is loaded.

To save the changes made in the program editor use the button **Apply**.

When you click the **Load** button the parameters for the program are set as setpoints in the main screen. The parameters are then subjected to a plausibility check for the type of rotor being used. A warning is issued if any values are not acceptable. These values can then be adjusted automatically to match the type of rotor being used.

For programs and rotors the following applies:

If the rotor is installed after the program has been chosen, than the speed of the centrifuge will be limited to the maximum speed of the rotor and the program name will not be shown any longer.





If the rotor is set in a program and another rotor is installed, than a dialogue is displayed, showing the inserted rotor and the expected rotor. The program name will not be shown any longer.

If a program is loaded after a rotor has been installed and the set speed in the program is too high, than the program will not be loaded and an error message is displayed.

If a program is loaded after a rotor has been installed, than a dialogue is displayed, showing the inserted rotor and the expected rotor. The program name will not be shown any longer.



The table below lists possible cases for loading a program. A program is either assigned to a specific type of rotor (when the program has been defined with a rotor in use) or not (program defined without a rotor in use). Normally, centrifugation can only be started when its assigned parameters do not exceed the limits defined for the centrifuge or the type of rotor being used. A warning will be issued if this is not the case.

	No program has been loaded. Centrifugation can be started.
	The program has been loaded. Centrifugation can be started.
	The program has been loaded. No rotor is currently being used. In the rotor information field the notice <b>No rotor</b> is displayed.
	No program has been loaded, or a program has been loaded and the parameters were subsequently changed in the main screen so that at least one parameter no longer corresponded to the value in the loaded program. A rotor is in use and all parameters are acceptable. Centrifugation can be started. In the program information field the notice <b>No program</b> is displayed.

Once the values for the program have been applied in the main screen, you can adjust the parameters for the next centrifugation run. The values stored for the program will not be affected by subsequent changes in the main screen. Program parameters can only be edited using the program editor in the configuration menu.

## Import

Programs can be imported via USB stick. To do this, connect an USB flash drive to the centrifuge and select the option **Import List**.

All programs with new names will be added to the internal list. If programs with the same name do exist on the centrifuge, they will be replaced during the import process.

The USB stick that you use, must have FAT32 formatting in order to be readable by the centrifuge.

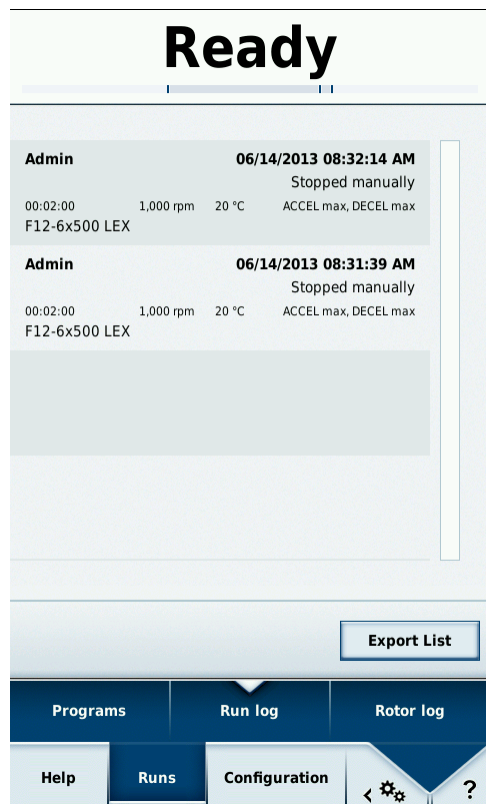
## Export

Programs can be exported via USB stick for further processing. To do this, connect an USB flash drive to the centrifuge and select the option **Export List**. Existing programs will then be exported to the USB stick as CSV files. Programs in this CSV format can be edited and imported using any spreadsheet program, such as Excel.

The USB stick that you use, must have FAT32 formatting in order to be readable by the centrifuge.

## Run log

Every centrifugation run is documented as a log. A new entry in the log list is registered as soon as a centrifugation run is started.



### Run log:

Every centrifugation process is logged. In addition to the defined parameters, such as **Time**, **Speed** and **Temperature**, an operator can also be registered for each configuration process as an option. An operator must be logged on prior to the start of centrifugation for this, however.

The log settings can be loaded using the **Load** button. The parameters used are then applied in the main screen.

The list of the last 120 entries is available for viewing under **Run log**. If required, this list can be exported to a USB stick for systematic evaluation of the centrifugation runs using the button **Export list**.

The following values are logged for each centrifugation run:

- Starting time
- Program used (if one was used)
- Run time
- Speed
- Temperature
- Profiles for acceleration and deceleration
- Rotor
- Termination of centrifugation (completed successfully/halted manually/error occurred)
- User name (if a user was logged in)

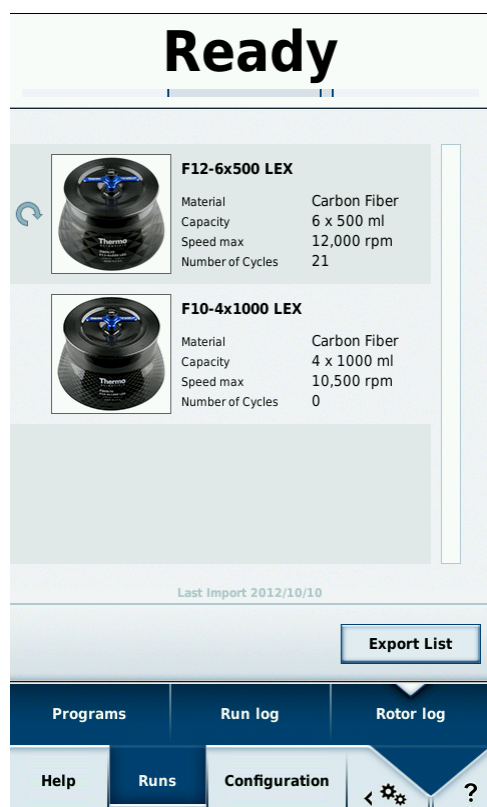
## Rotor log

All of the types of rotor known by the centrifuge are listed in the **Rotor log** submenu. The maximum values and the number of centrifugation runs that have already been performed with this type of rotor are displayed for each rotor type.

The following values are saved in a **Rotor log**:

- Rotor type and rotor name
- Rotor material
- Capacity (maximum number and volume of specimen containers)
- Maximum speed
- Number of centrifugation runs performed up to this time in this centrifuge with this type of rotor

The centrifugation runs performed with each rotor type are saved.



### Rotor log:

You can view the rotor data and the number of centrifugation runs performed with this rotor here for each rotor type and rotor name ever used in the centrifuge. The type of rotor being used is indicated by the open round arrow.

## Settings

You edit the settings for user management, general settings, device and contact in the setting section of the configuration menu.



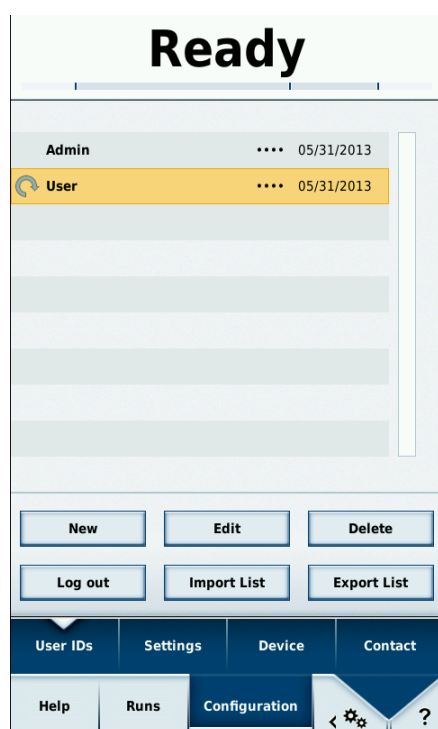
## User Management

A centrifugation run can be assigned to a user. That user is then saved in the centrifuge log, enabling subsequent evaluation of which user(s) conducted which centrifugation run(s). You can define in the menu **Settings** whether a log-in is required to start centrifugation (see “**Settings**” on page 4-8 and “**Access Control**” on page 4-10).

Go to the submenu **User IDs** in the **configuration menu** to determine which users are listed. Here, you can create new user accounts, or edit existing ones.

Any user that is logged in can edit his/her own user information. The user may also change his/her user name and PIN (4-digit) for the corresponding configuration. Only users with Admin rights may create new users or manage other users.

A user needs not be logged in the “open environment” (see “**Open Environment**” on page 4-12). New user accounts can be created by any users in this environment. These new users are not assigned a PIN, however. These user accounts can, as a result, not be used in the closed environment, for which a password must be entered. PINs must be assigned to user accounts at a later time for working in a closed environment.



### User Management:

The logged-in user is indicated by an open round arrow. All users holding a valid PIN are indicated by 4 dots to the right of his/her name.

The screenshot shows a tablet interface with a 'Ready' status at the top. Below it, the 'Admin' user is logged in, with a date of 08/23/2032. The main screen is titled 'EDIT USER ACCOUNT'. It contains four input fields: 'USER ID' with the text 'Dr. Jones', 'USER PIN' with four dots, 'REPEAT USER PIN' with four dots, and 'USER ROLE' with a dropdown menu showing 'Administrator'. At the bottom of the form are two buttons: 'Cancel' with a red 'X' icon and 'Apply' with a green checkmark icon. The bottom navigation bar has seven icons: 'User IDs', 'Settings', 'Device', 'Contact', 'Help', 'Runs', and 'Configuration'.

#### Editing a user:

Selection of the corresponding user role determines whether a user possesses Admin rights.

The factory default Admin PIN is 0000. First, create a new administrator profile with a new PIN. Then delete the factory default profile.

## Import

Users can be imported via USB stick. To do this, connect an USB flash drive to the centrifuge and select the option **Import List**.

All users with new names will be added to the internal list. If users with the same name do exist on the internal list of the centrifuge, they will be replaced during the import process.

The USB stick that you use, must have FAT32 formatting in order to be readable by the centrifuge.

## Export

Users can be exported via USB stick for further processing. To do this, connect an USB flash drive to the centrifuge and select the option **Export List**. Existing users will then be exported to the USB stick as CSV files. Users in this CSV format can be edited and imported using any spreadsheet program, such as Excel.

The USB stick that you use, must have FAT32 formatting in order to be readable by the centrifuge.

## Access Control

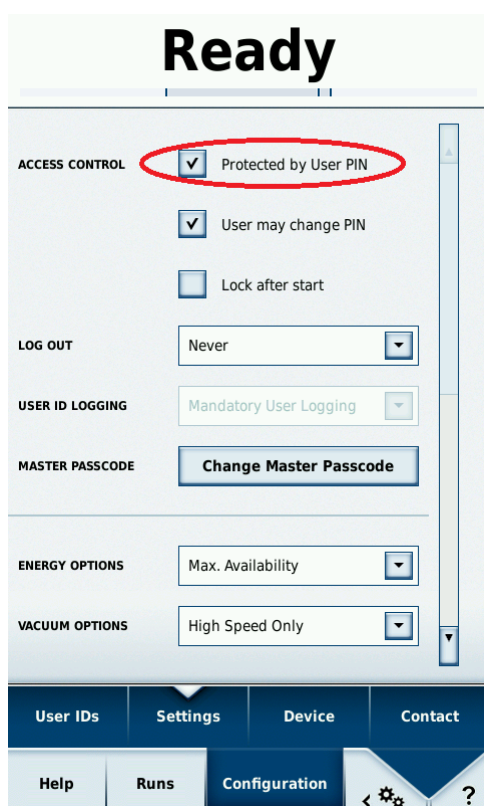
In the **Settings** submenu of the **configuration menu** you can define whether log-in is required to start a centrifugation run. Device policy settings can only be made after entering a master PIN (5-digit) (see **“User Roles”** on [page 4-15](#)). The factory default for the device master PIN is 12345. As the first step, change the device master PIN.

The following access control options are possible:

- Open environment

- Log-in is not required in this mode. Centrifugation can be started by any user.
- Closed environment (PIN protected)
  - In this mode, log-in using a PIN must be entered to make any settings and to start a centrifugation run.

Access control	Options
Open environment	<ul style="list-style-type: none"> <li>• No user specified</li> <li>• Optional user selection</li> <li>• Mandatory user selection</li> </ul>
Closed environment	<ul style="list-style-type: none"> <li>• Login with name and PIN</li> </ul>

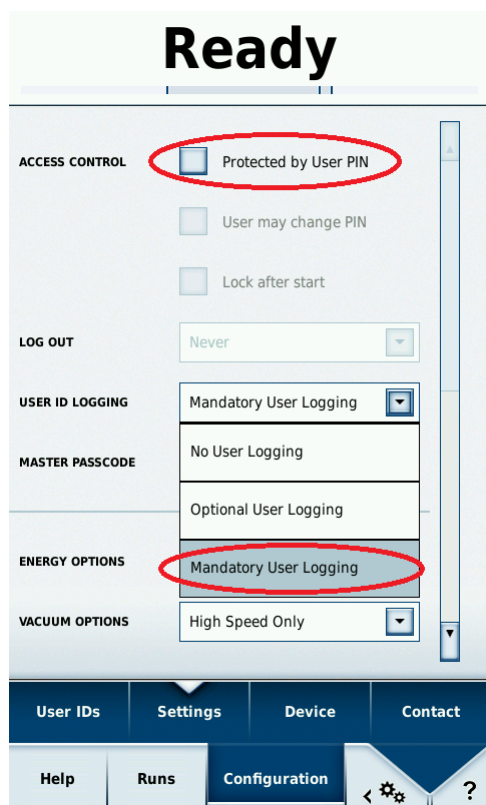


**Closed environment:**

The closed environment is activated by checking this box. This box must remain unchecked (blank) for an open environment.

## Open Environment

A PIN is not required to operate the centrifuge in an open environment. Any user can enter parameters and perform centrifugation runs. Various options are available for the open environment scenario to establish which centrifugation runs were started by which users. A distinction is drawn in these options as to whether the user is also to be documented in a centrifugation log.

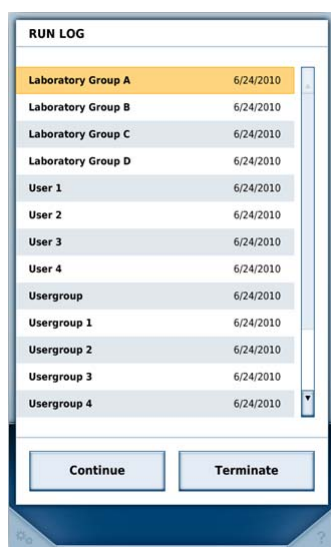


### Open environment

The open environment scenario is activated.

You can now define whether the user is to be included in every centrifugation log (here: logging of user is activated).

- No user specified
  - No user is selected prior to starting the centrifugation run. The centrifugation log contains no information about the user who started the centrifugation run.
- Optional user selection
  - In this mode, a user may be selected when starting the centrifuge. The centrifugation run is assigned to the selected user and the user name is listed in the centrifugation log. Specifying a user is optional. If no user is selected, this log is equivalent to the first option above for the open environment: **No user**.
- Mandatory user selection
  - In this mode, a user must be selected in order to start the centrifuge. As a result, each centrifugation run is allocated uniquely to a specified user.

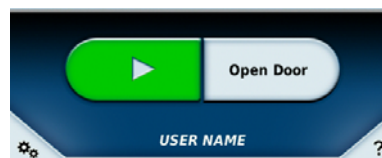
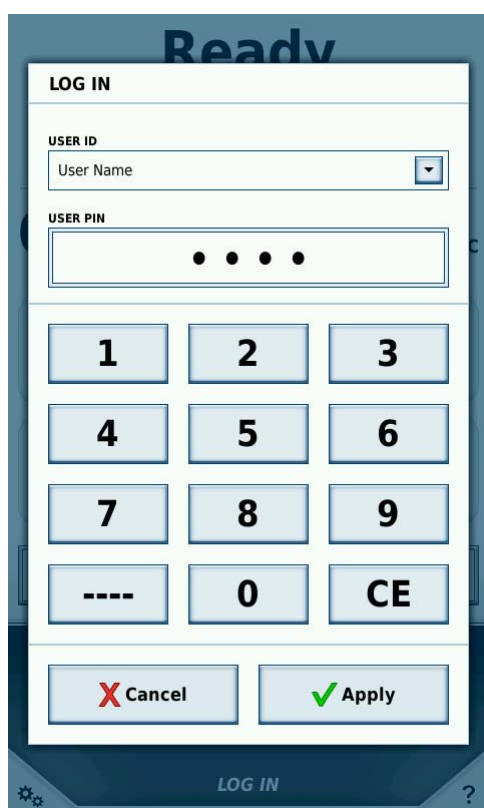


#### Mandatory user selection:

Allocation of a user to a centrifugation run is obligatory for mandatory user selection.

## Closed Environment

In a closed environment, users must log in using their PIN before they can operate the centrifuge. The login window is opened by touching the user name at the bottom of the screen.



#### Login:

When you press the arrow in the **USER ID** field, a list of all available users is opened.

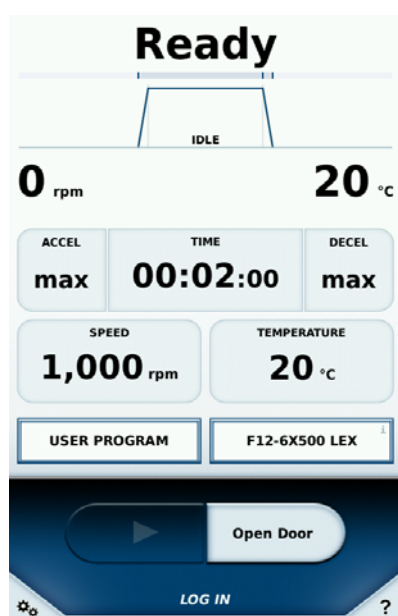
In the centrifugation log the user logged in for the specific centrifugation run is documented. If no user is logged in, the centrifuge cannot be started in a closed environment. Any user can halt an ongoing centrifugation run or open the Tooltip mode and the configuration menu without having to be logged in. All displays and screens are, however, available as read only. Only users that have logged in may define/change settings.

A user can log in/out at any time when the rotor is not spinning simply by touching the user name field at the bottom of the main screen. As an alternative, the user can also log out under **User ID** in the configuration menu using the **Log out** button.

In a closed environment it is possible to activate an automatically locking of the user interface, so that no other user is able to change the settings while a run is active. This option is called „Lock after start“ and has to be enabled in the configuration menu under **Acces control**. It can only be enabled, if the option „Protected by user PIN“ is enabled.

When the user interface is in the „Lock after start“-mode, no changes to the centrifuge are possible except stopping it, by pressing the **Stop** button.

To unlock the user interface, touching the button for the set points or the one for the user name will bring up the log in dialog. When the correct user PIN has been entered, the user interface will be unlocked. Instead of using the user PIN it is possible to enter the device master PIN instead.

**Read only mode:**

Parameters cannot be changed until a user logs in.

**Lock after start:**

The user interface is locked after a centrifugation has been started.

In the closed environment you can also specify the setting for whether and when the registered user is logged out automatically. These settings can be defined under **Settings** in the configuration menu using the device master PIN (see “**User Roles**” on [page 4-15](#)). The factory default for the device master PIN is 12345.

The following settings are required for automatic logout:

- Directly after a completed centrifugation run (as soon as the cover has been opened)
- 5 minutes without any interaction after a completed centrifugation run
- The user is not logged out automatically and remains logged in until he/she logs off, or until a different user logs in.

## User Roles

A distinction is made between the following user roles: Administrator and User. The centrifuge includes the device master PIN, which can be used to define all settings for the centrifuge. The device master PIN is handed over to the owner of delivery of the unit and may be changed. Therefore, for safety and security reasons, this PIN should not be disclosed to persons besides the owner.

An administrator is authorized for user account management (see “[User Management](#)” on [page 4-9](#)).

The device master PIN is required to make changes in the **Settings**, **Device** and **Contact** menus. All of the settings in the open menu are enabled for editing after the master PIN has been entered. If a menu is closed completely and then re-opened, the master PIN must be entered again to make changes to any of the settings in that menu.

## General Settings

The **Settings** submenu of the **Configuration menu** consists of two pages. On the first page you define settings for device policy and general settings, such as the energy saving option. Signal settings and languages can be defined on the second page.

The master PIN must be entered before any changes can be made in this menu (see “[User Roles](#)” on [page 4-15](#)). Signal settings do not require input of the device master PIN.

Overview of possible settings in this menu:

- Device Policy
  - Define whether operation of the centrifuge requires a PIN to be entered (**Closed environment** or not **Open environment**). In an open environment you can also define whether a user is to be assigned to each centrifugation run.
- Language
  - Language
- Energy Saving Options
  - Define various energy-saving modes.  
Possible options: Green Mode, Balanced Mode, max. Availability
- Centrifuge Vacuum
  - Define whether a vacuum is to be employed.  
Possible options: High Speed only, Smart Energy Optimized
- Brightness
  - Brightness Control.
- Sound Signal
  - You can define different acoustic signals in order to distinguish between various centrifuges.
- Volume Control
  - Use this regulator to adjust the volume of the signal

The screenshot shows a 'Ready' status bar at the top. Below it, the settings menu includes: LANGUAGE (English), DATE (05/13/2013), TIME (03:14:00 PM), BRIGHTNESS CONTROL (a slider), END OF RUN ALERT (Off), and VOLUME CONTROL (a slider). A 'Test Alert Settings' button is located below the volume control. At the bottom, there is a navigation bar with tabs for 'User IDs', 'Settings' (which is highlighted), 'Device', and 'Contact'. Below this, a secondary bar contains 'Help', 'Runs', 'Configuration' (highlighted), and a settings icon (gear) and a question mark icon.

**Settings Menu:**

In the [Settings](#) menu you can modify the volume of the signal, for example.



## Device Settings

In the **Device** submenu of the configuration menu you can specify special data about the location of the device. The master PIN is required to make any changes in this menu (see “[User Management](#)” on [page 4-9](#)).

If the centrifuge is incorporated into a network you can specify the address of the centrifuge here. These settings are important when rotor types are to be imported or exported from a server via the network.

A device master PIN must be entered to make any changes in this menu.

The screenshot displays the 'Ready' screen of the Sorvall LYNX touchscreen user interface. At the top, the word 'Ready' is prominently displayed. Below it, the 'Device' settings menu is active, showing various configuration options. The menu is divided into sections: 'DEVICE TYPE' and 'SERIAL NUMBER' (Centrifuge XYZ, THF-012-345-6789), 'SOFTWARE VERSION' (1234V2 (1.0.8)), 'HMI' (589V125), 'MAIN CONTROLLER' (4719V226), 'PARAMETERS', 'DEVICE NAME' (My Centrifuge), 'DEVICE LOCATION' (My Laboratory), 'IPV6' (unchecked), 'DHCP' (checked), 'IP ADDRESS' (10.48.137.244), 'SUBNET MASK' (255.255.252.0), 'STANDARD GATEWAY' (10.48.136.2), and 'DNS SERVER' (10.48.137.32). A 'Change' button is located below the network settings. At the bottom, there is a navigation bar with tabs for 'User IDs', 'Settings', 'Device', and 'Contact'. Below this, a secondary bar contains 'Help', 'Runs', and 'Configuration' (which is highlighted). To the right of the 'Configuration' tab are icons for a back arrow, a gear (settings), and a question mark.

Ready			
DEVICE TYPE	Centrifuge XYZ		
SERIAL NUMBER	THF-012-345-6789		
SOFTWARE VERSION	1234V2 (1.0.8)		
HMI	589V125		
MAIN CONTROLLER	4719V226		
PARAMETERS			
DEVICE NAME	My Centrifuge		
DEVICE LOCATION	My Laboratory		
<input type="checkbox"/> IPV6 <input checked="" type="checkbox"/> DHCP			
IP ADDRESS	10.48.137.244		
SUBNET MASK	255.255.252.0		
STANDARD GATEWAY	10.48.136.2		
DNS SERVER	10.48.137.32		
Change			
User IDs	Settings	Device	Contact
Help	Runs	Configuration	< ⚙ ?

## Contact

Contact data for Thermo Fisher Scientific is given in the contact section in the event that you have any queries about the device or experience technical difficulties. If a caretaker is given for your centrifuge you can enter the data for this person in this section so that your employees know who to contact for any questions they may have. Also contact the person specified here if changes are to be made which required the master PIN.

Any changes to the name and contact data of the person responsible for the centrifuge require the master PIN.

Ready

Instrument Owner

NAME

First Name Surname

PHONE NUMBER

00-1234-56789

E\_MAIL ADDRESS

mail@caretaker.com

Thermo Fisher Technical Service

First Name Surname

Phone Number

+00 (0) 1234 567 8

Fax Number

+00 (0) 1234 567 9

E-Mail Address

technical.service@thermofisher.com

Postal Address

123 Road  
City, State 45678  
Country

Thermo Fisher Sales Service

First Name Surname

Phone Number

+00 (0) 1234 567 8

Fax Number

+00 (0) 1234 567 9

E-Mail Address

sales.service@thermofisher.com

Postal Address

123 Road  
City, State 45678  
Country

User IDs

Settings

Device

Contact

Help

Runs

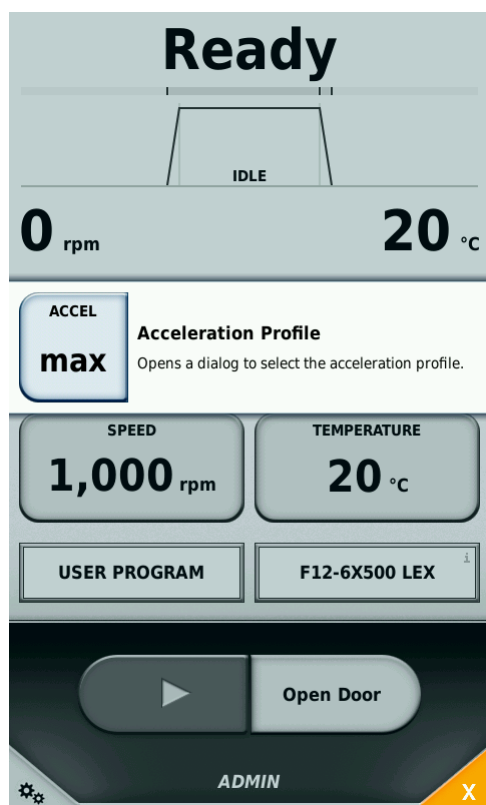
Configuration

< ⚙ || ?

## Tooltip Mode

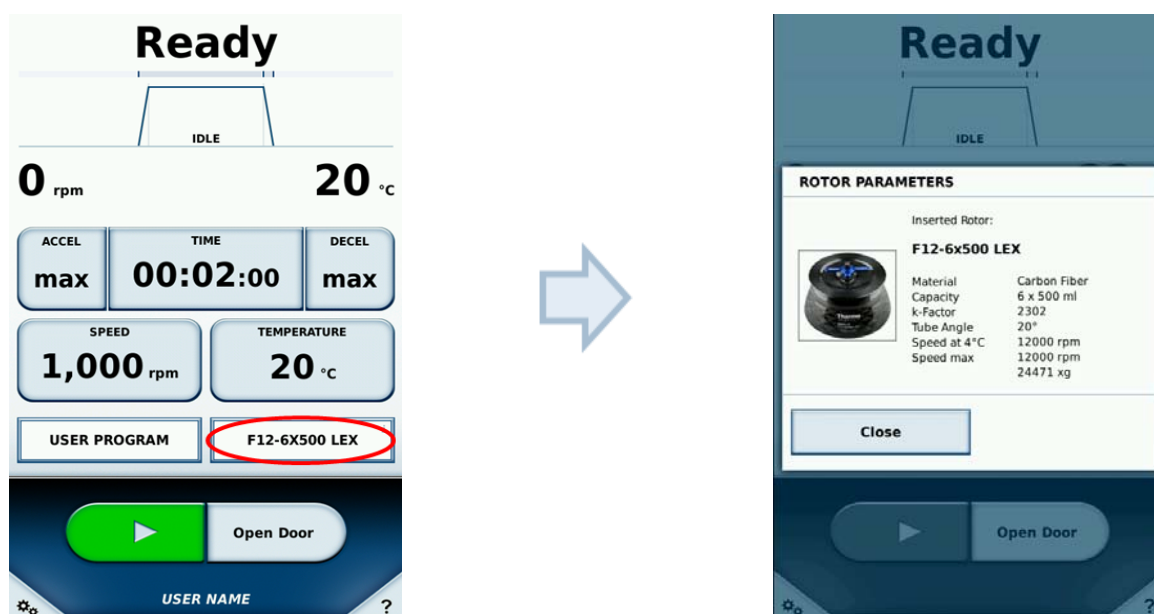
As with the configuration menu, the Tooltip mode cannot be accessed while a centrifugation run is in progress. You can activate the Tooltip mode while the rotor is at standstill to view information about the individual buttons. Use the button at the bottom right-hand corner of the main screen to activate the Tooltip mode.

Touch any element on the screen to view detailed information about it. The actual function of the element is not activated or initiated while in the Tooltip mode. Touching the screen again de-activates the Tooltip mode. The Tooltip mode is available for every button in the main screen and most of the elements on the configuration screens.



## Rotor

The rotor is detected automatically by the centrifuge. If the centrifuge is familiar with the rotor type the key parameters for the rotor being used will be displayed in the rotor data field.



## Rotor import

When using a rotor with which the centrifuge is not familiar, the window for importing rotor data via a USB stick is displayed. This dialog guides the user through the import process.

Import of the rotor data is begun when the USB stick is connected to the centrifuge. Progress of the import is indicated by the progress bar. The remaining progress is indicated as a percentage under the progress bar, along with the remaining time in minutes and seconds (MM:SS). On successful completion of rotor data import, the rotor information field is displayed, containing all of the data for the newly added rotor. You must then restart the centrifuge by touching the **Restart** button.

# Thermo Scientific Centri-Vue Application



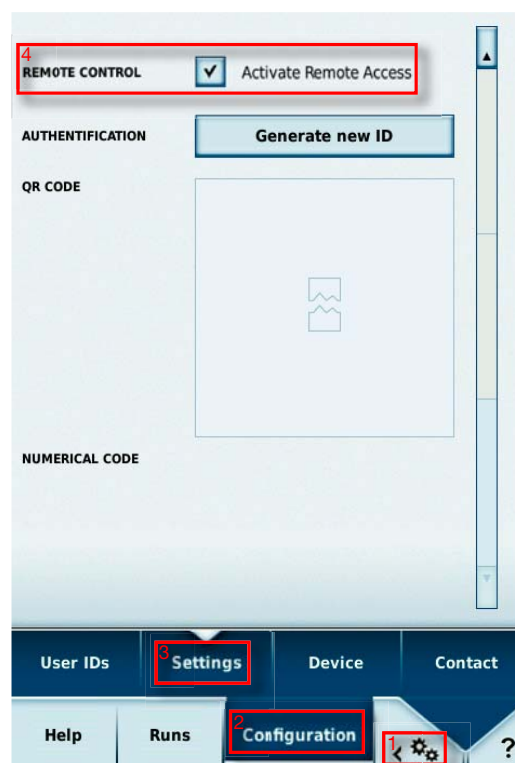
## Requirements

- Thermo Scientific Sorvall LYNX centrifuge with Thermo Scientific Touchscreen User Interface software, version 1.2.2 or higher
- Thermo Scientific™ Centri-Vue™ application, version 0.1.2 or higher
- Local Area Network (LAN)

## Quick Guide

This quick guide describes the steps how to connect the centrifuge with the Centri-Vue application. Detailed descriptions are given in Chapter 4.

1. Install the touchscreen user interface software on the centrifuge.
2. For remote control of the centrifuge you have to make some option changes in the touchscreen user interface. To activate the remote control access, select **Settings** (Step 1-3) and select the checkbox „Remote Control“ (Step 4).



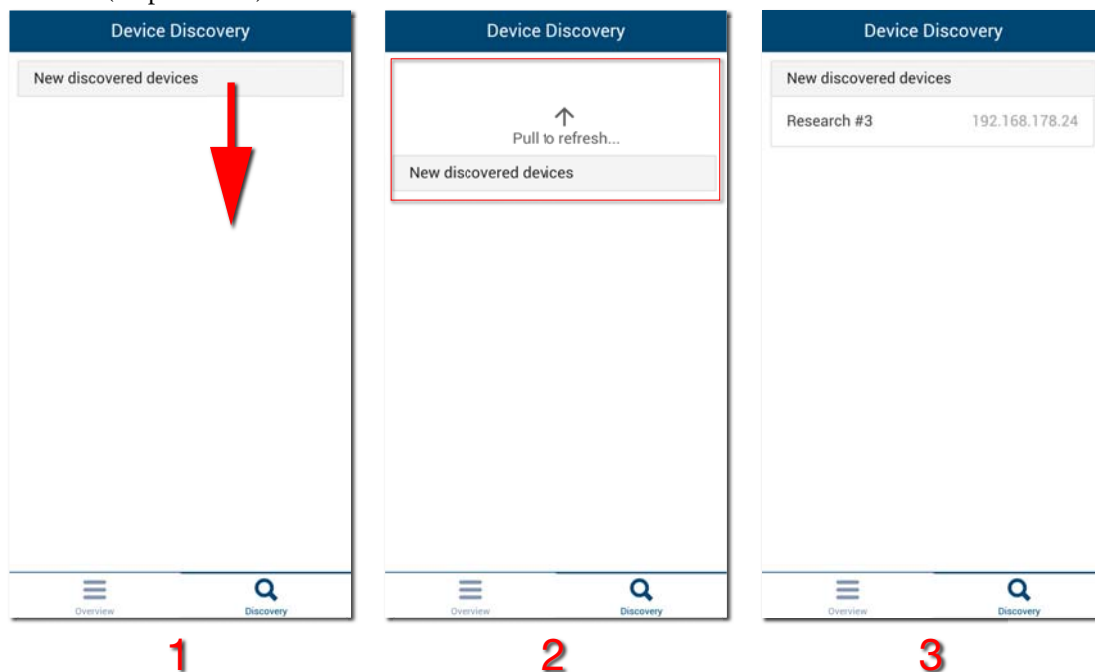
3. Download and install the Centri-Vue application on your smartphone.
4. Smartphone and centrifuge have to be in the same LAN with the same IP range.
5. Start the Centri-Vue application.



6. Select **Discovery Screen**.



7. Open the **New Discovered Devices** list in the discovery menu to search for new centrifuges in the network (Step 1 and 2).



8. Centrifuges with installed Connectivity Plug-In will be identified automatically in the same LAN (Step 3).
9. Select the identified centrifuge.
10. Select **Add Device** to add the centrifuge to the device list in the overview menu.

Optional: You can add some additional information about the centrifuge. Select the **Information** field.

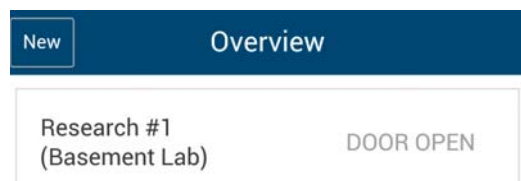
Add New Device
Cancel

**IP-Address**  
192.178.168.25

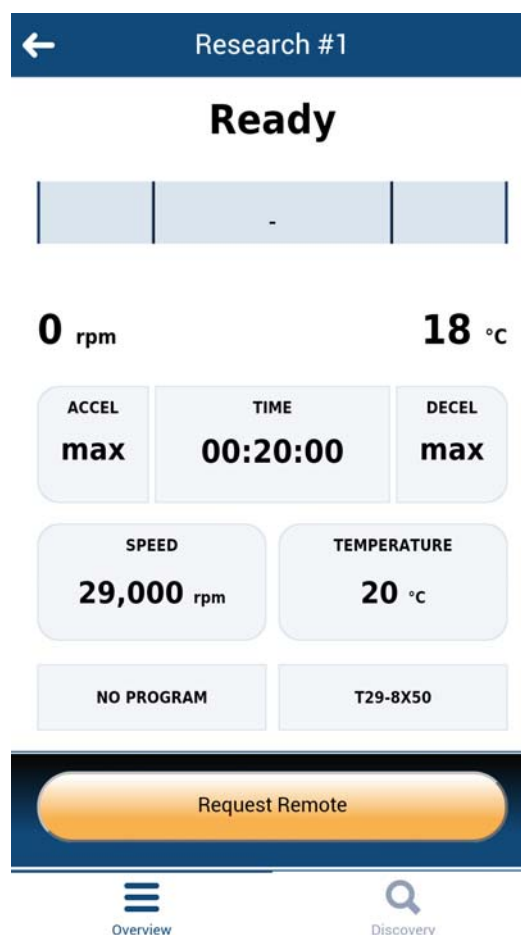
**Information**

Add Device

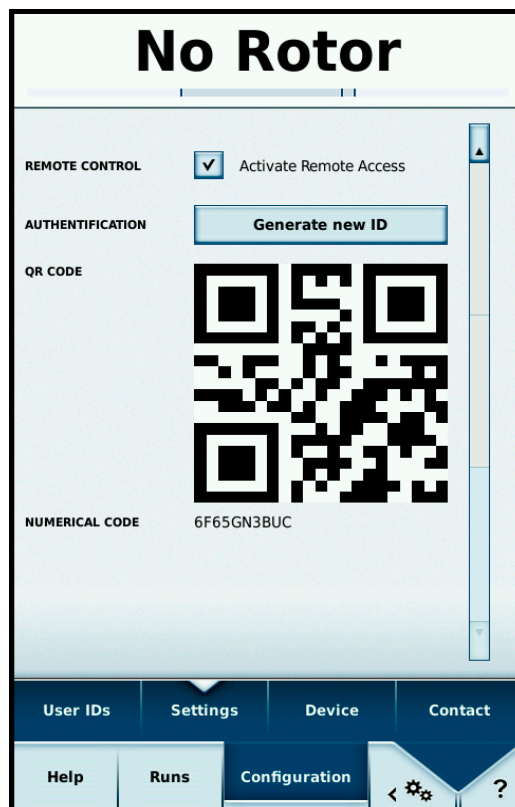
11. The application switches to the overview menu and shows the formerly added centrifuge entry in an information block (name, information, status).



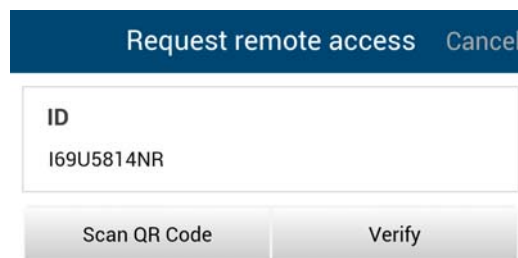
12. Select the added centrifuge entry to switch to detail view.
13. For remote control select **Request Remote** in detail view.



14. Generate a new Remote ID. Select **Generate new ID** in the settings screen.

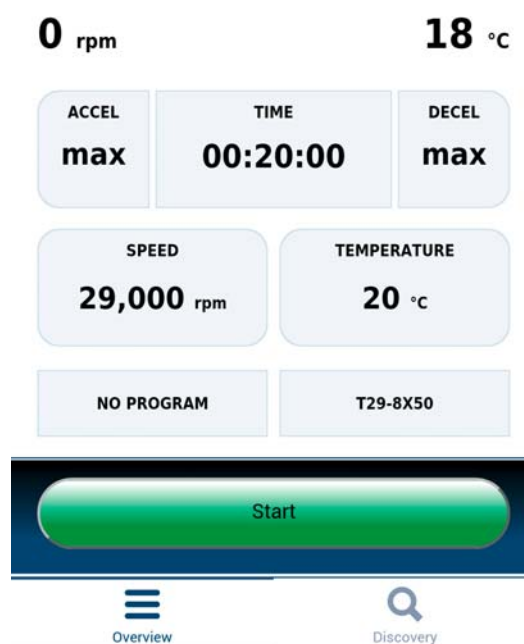


15. In the request remote access screen of the Centri-Vue application you can enter the ID by hand or by scanning the QR-Code.
16. Select **Verify**.





17. If you have remote access to the centrifuge the start button is green.



## Connectivity Plug-In (Touchscreen User Interface)

### Remote Settings

For remote control ability (start / stop by smartphone application) you need to change the settings as described below. If you just want to check the status of the centrifuge on your smartphone (read only access) you do not need to select the checkbox “Activate Remote Access” in the touchscreen user interface.

The settings for the remote control feature are located on the last page of the touchscreen user interface settings menu.

Following options are available:

1. Remote Control: Checkbox to general allow/deny remote control. (Master passcode required)
2. Authentication: Selecting **Generate new ID** generates a new code (ID) for a remote session. Depending on the setup a user authentication may be required.
3. QR- Code: The generated ID is shown in a QR-Code.
4. Numerical Code: The generated ID is displayed in text form.



### Access Control Settings

The centrifuge has 2 different user modes which influence the behavior of the remote control feature.

1. Closed centrifuge: If the option “Access Control” is selected it is not possible to start the centrifuge without login. A Remote ID can just be generated if a user is logged in.
2. Open centrifuge: The option „Access Control“ is not checked. It is possible to start the centrifuge without login. There are 3 different options for user ID logging:
  - a. No user logging.
  - b. Optional user logging.
  - c. Mandatory user logging.

Depending on the selection a user login is mandatory to use the remote control feature as the user is able to start the centrifuge remotely and the centrifuge needs to know the user for logging purposes.

## Centri-Vue App

The Centri-Vue application can discover available centrifuges in the LAN and create a list of local centrifuges with optional additional user information. This information can be used to add location information to the local centrifuge entry.

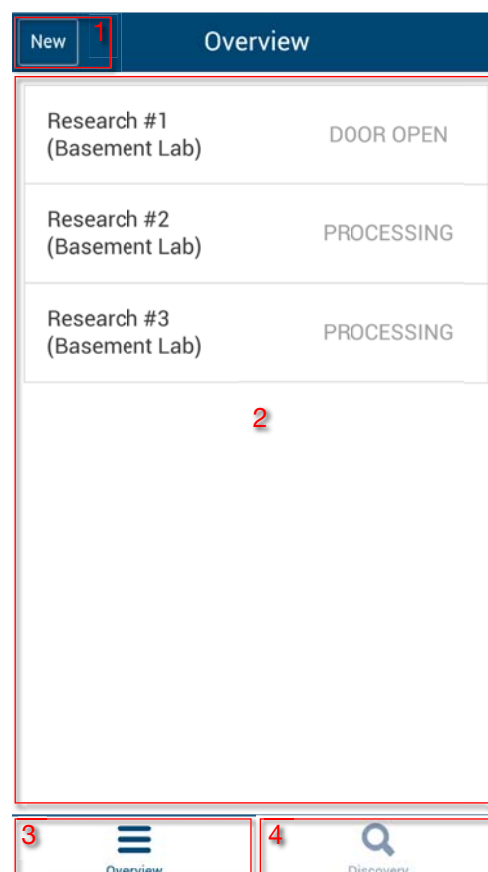
### Overview Menu

1. Select **New** to manually add new centrifuges.
2. List view: shows the added centrifuges in a list showing following information:
  - a. Name of the centrifuge  
(if no name is entered for the centrifuge, the IP address of the centrifuge is shown instead)
  - b. Optional information (e.g. for location information)
  - c. Centrifuge status

Select a centrifuge entry, to open the detail view for a centrifuge.

3. Select **Overview** to switch to the overview menu.
4. Select **Discovery** to switch to the discovery menu.

To edit or delete a locally saved centrifuge, select a list element and keep it touched. Detailed information to this screen is listed below at 4.5.



### Centrifuge States

The centrifuge can show following states:

- "DOOR OPEN (if the door is open)
- "READY (if the centrifuge can be started)
- "ACCELERATING (if the centrifuge accelerates)
- "RUNNING (if the centrifuge is running)
- "STOPPING (if the centrifuge decelerates)
- "COMPLETE (when a run has been completed successful)
- "STOPPED (If a run get canceled)
- „POWER DOWN“ (centrifuge is switched off)

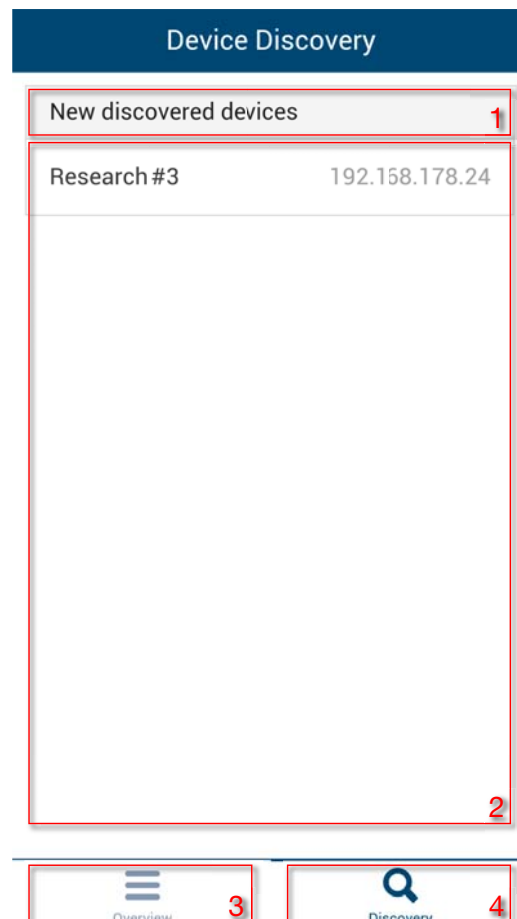
**Note** This message is only available when the centrifuge is connected to a network with PoE.

- "DISCONNECTED (Network timeout)

If a centrifuge error occurred, a red cross is displayed.

## Discovery Menu

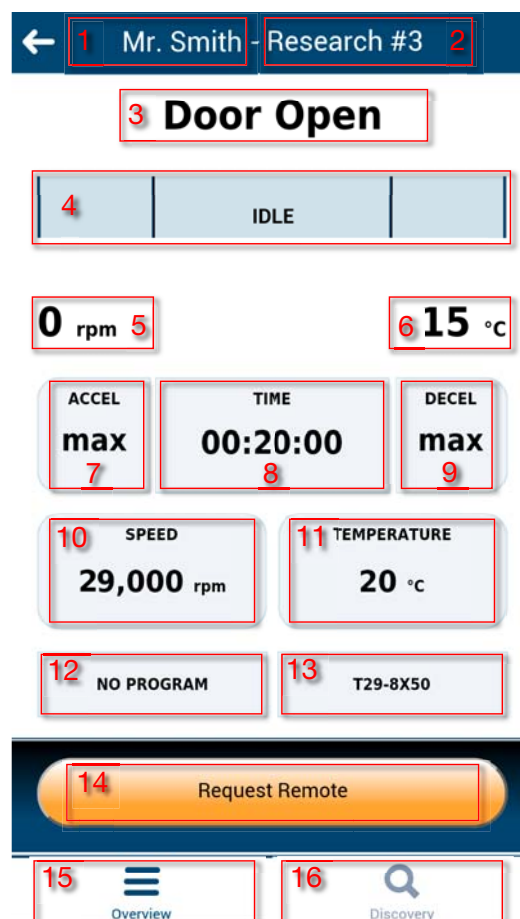
1. New discovered devices: To start a new discovery, open the item list.
2. List view: all centrifuges found in the network will be displayed. For each centrifuge following information is shown:
  - a. Name of the centrifuge
  - b. IP address of the centrifuge
3. Select **Overview** to switch to the overview menu.
4. Select **Discovery** to switch to the discovery menu.



## Detail View

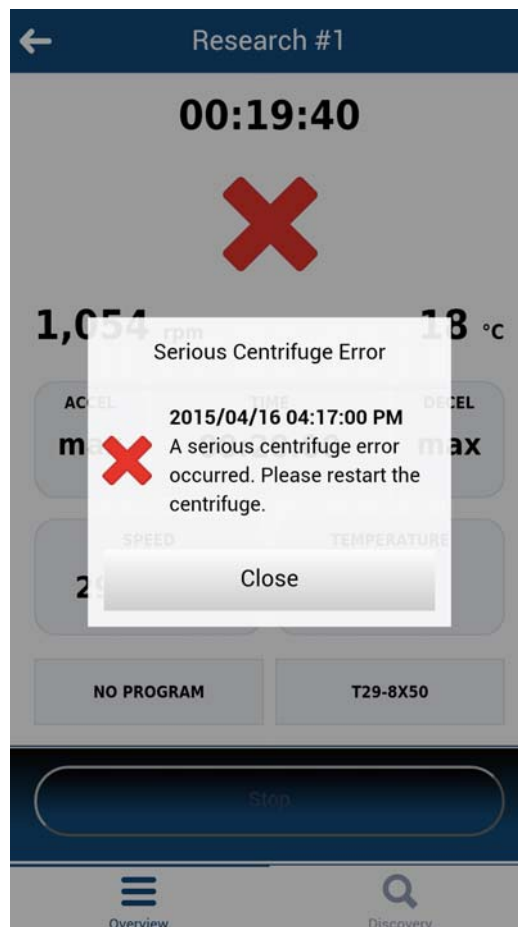
To enter the detail view of a locally stored centrifuge, select a centrifuge entry. The detail view is very similar to the main screen of the touchscreen user interface software and shows the current values of the centrifuge (at a refresh rate of one second). All parameters are read only, they can only be changed by accessing the LYNX centrifuge directly.

1. User (Optional): If a user login is necessary to start the centrifuge, the username is shown here.
2. Name of centrifuge: shows the name of the centrifuge. If no name is set yet for the centrifuge, the IP address of the centrifuge is shown.
3. Time display: shows processing time or remaining time depending on the program selection.
4. Status display: shows the progress of the centrifuge graphically.
5. Current speed: shows the current speed of the centrifuge.
6. Current temperature: shows the current temperature of the centrifuge.
7. Acceleration: specifies the acceleration of the centrifuge.
8. Time: specifies the duration of the centrifuge.
9. Deceleration: specifies the deceleration of the centrifuge.
10. Speed: specifies the target speed of the centrifuge.
11. Temperature: specifies the target temperature of the centrifuge.
12. Program display: shows, if a preset program is used.
13. Rotor display: shows the name of the installed rotor.
14. Request remote: select button to switch to the "Request Remote Access" menu.
15. Overview: select button to switch to the „Overview“ menu.
16. Discovery: select button to switch to the „Discovery“ menu.



## Detail View during Error

If an error occurs to the centrifuge, a message will pop up in the detail view. The message opens every time you switch to the detail view until the error is fixed. Selecting the big red cross in the detail view opens up the message manually.



## Adding a Centrifuge

### Search on Network

If the IP address of the centrifuge is not known, the centrifuge can be discovered with discovery functionality. Follow the provided steps:

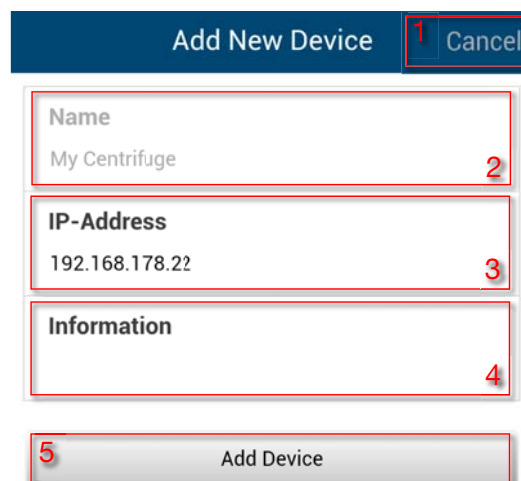
1. Switch to **Discovery menu**.
2. Open the list **New Discovered devices**.
3. The found centrifuges are displayed in a list of names and IP addresses.

**NOTE** If no name is entered in the centrifuge, the name field remains empty.

4. Select the desired centrifuge.

This opens the „Add New Device“ menu:

1. Cancel: closes the „Add New Device“ menu without saving.
2. Name: shows the name of the centrifuge. The name is detected automatically and cannot be edited. If no name is retrievable, "Device name Example" is shown.
3. IP-Address: the IP address is entered automatically. It can be edited subsequently.
4. Information: additional information can be entered later in order to identify the centrifuge better.
5. Add device: selecting this button adds the centrifuge in the overview menu. If saved successful, the application switches to the overview menu and shows the added centrifuge.



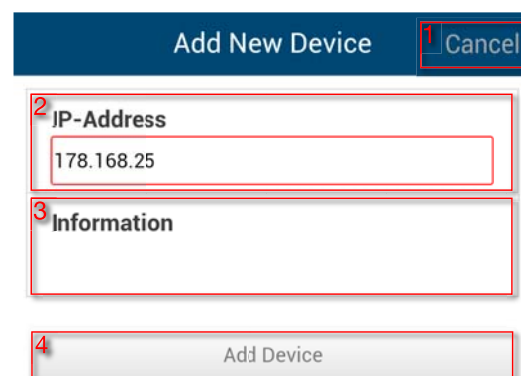
## Add Manually

If the IP address of the centrifuge is known (after selecting the found device), the centrifuge can be manually saved in the overview menu:

Select **New** in the overview menu.

This opens the Add New Device menu:

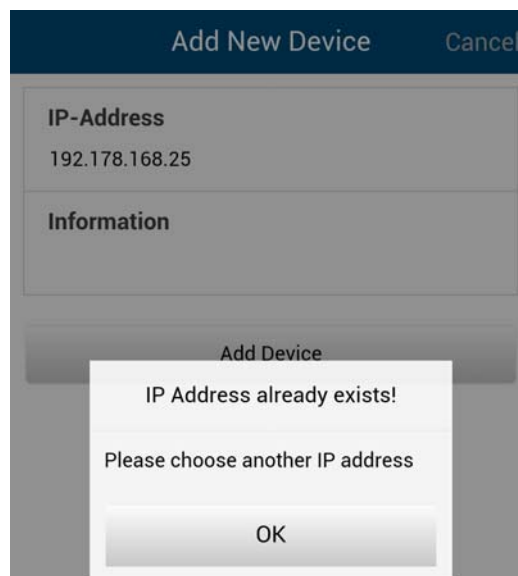
1. Cancel: closes the „Add New Device“ menu without saving.
2. IP-Address: the IP address will be entered automatically if available.
3. Information: additional information can be entered in order to better identify the centrifuge later.
4. Add device: selecting this button adds the centrifuge in the overview menu. If saved successful, the application switches to the overview menu and shows the added centrifuge.



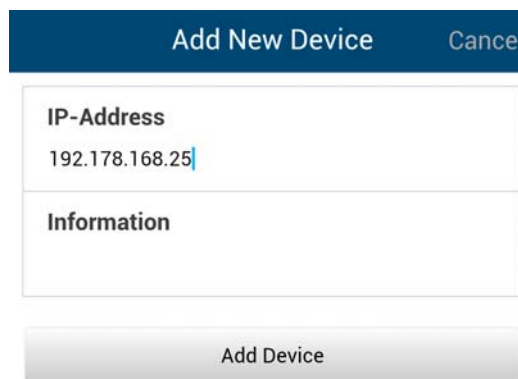
## Error Adding Centrifuges

If a centrifuge cannot be added to the overview menu, there are two possible reasons:

1. A centrifuge with the same IP address is already stored in the local list. A pop-up message indicates the error. (See figure 19)



2. The IP address has no valid format. The entered IP address must have the format (x.x.x.x). In addition, only numbers may be included. If an IP address is entered in an invalid format the outline turns red and the add device button will be disabled. (See figure 20)

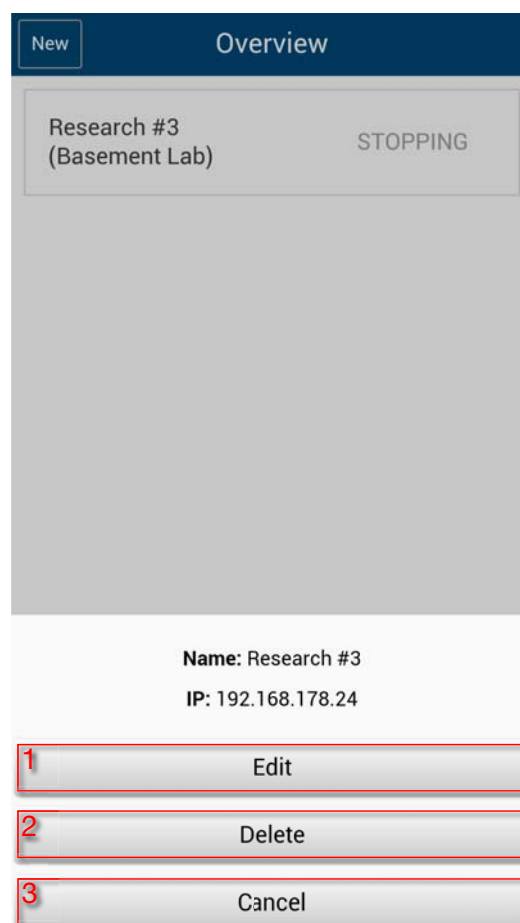




## Edit Centrifuge Entry

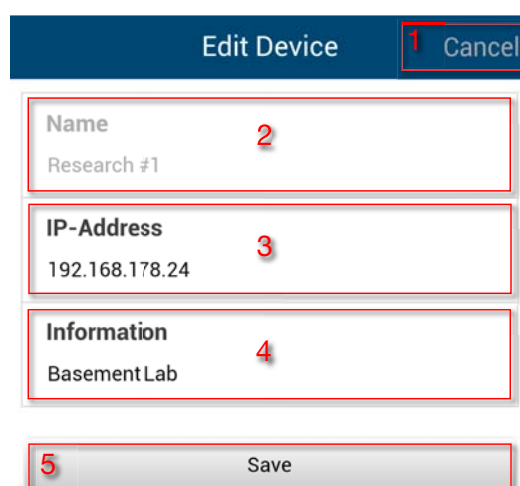
The centrifuge entries in the overview menu can be edited or deleted. To edit a centrifuge entry, select the entry and hold it (about 3 seconds). The edit menu will open with the following options:

1. Select **Edit** to open the edit menu of the centrifuge.
2. Select **Delete** to delete a centrifuge entry. Deletion is done, if the subsequent question is confirmed with **Yes**.
3. Select **Cancel** to switch back to the overview menu.



If **Edit** is selected, an "Edit Device" menu opens.

1. Select **Cancel** to return to the overview menu.
2. Name: the name of the centrifuge can only be changed directly at the LYNX centrifuge and is therefore not editable.
3. IP-Address: the stored IP address can be changed here.
4. Information: the information field can be edited here.
5. Save: changes can be saved.



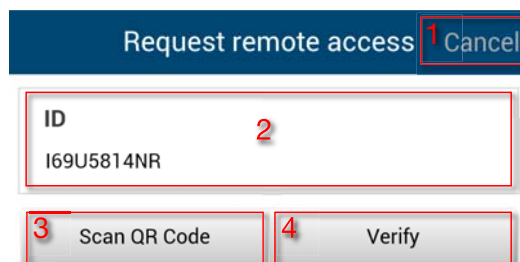
## Remote Control

Prerequisites: The centrifuge was enabled for remote access. (For detailed information, see chapter 3).

## Request Remote Access Menu

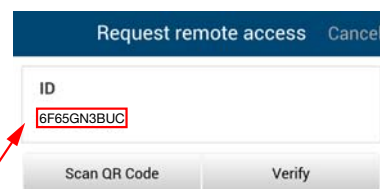
The „Request Remote Access“ menu opens when **Request Remote Access** is selected in the detail view.

1. Select **Cancel** to return to the overview menu.
2. ID: the Remote ID from the centrifuge can be entered manually.
3. Scan QR-Code: opens the integrated QR-Scanner.
4. Verify: the entered or scanned code will be verified. A new session for this smartphone will be created in case of a successful verification.



## Input by Hand

1. Generate a new ID on the centrifuge
2. Press in the "ID" field of the „Request Remote Access“ menu. The keyboard appears.
3. Enter the numerical ID into the input field on the smartphone. Select **Verify**.

## Input by QR-Code

1. Generate a new remote ID in the centrifuge (s. 3.2.2). Select **Scan QR-Code** in the „Request Remote Access“ menu.
2. The integrated QR scanner opens.
3. Scan the QR-code on the centrifuge with the QR scanner (See figure 25).
4. If the QR-code is successfully scanned, the application returns to the „Request Remote Access“ menu.
5. The remote ID is decoded from the QR-code and shown in the ID field. The ID can be checked again, by comparing it to the numerical code on the centrifuge.
6. Select **Verify**. If successfully verified, the application returns to the „Detail view“ menu.



## Error Establishing the Remote Connection

If a message "Request Error" pops up when selecting **Verify**, no remote connection is established to the centrifuge.

Possible error sources:

- The remote ID was not transferred correctly from the centrifuge.
- Another user has already built up a remote session with this remote ID.
- The centrifuge and/or smartphone are not on the same network

## QR-Code is not Recognized by the Scanner

- To scan the QR-code quickly and correctly, the phone must be held vertically over the QR-code.
- The entire QR-code should be in the bright area of the scanner.
- If you have problems to focus the QR-code, check if the camera of the phone works and if the camera lens needs to be cleaned.

## Closing the Remote Session

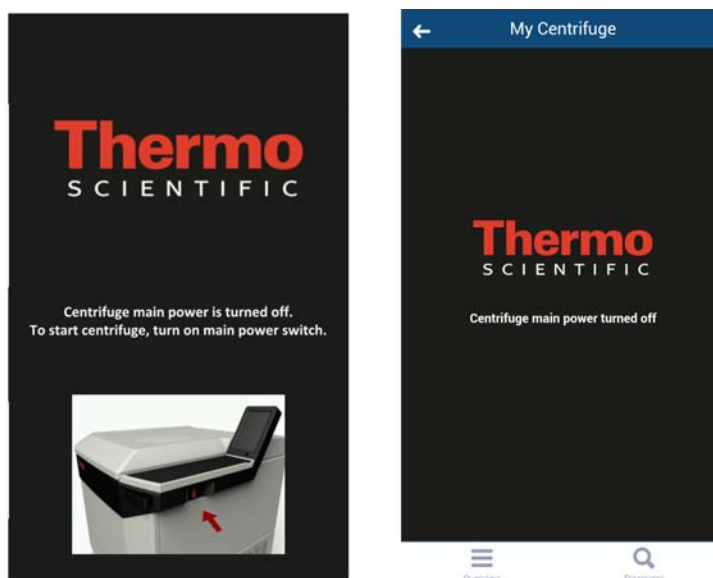
The remote session cannot be terminated manually. However, the remote session terminates automatically at the following events:

- A new remote ID is generated at the centrifuge.
- Centrifuge without User login: If the centrifuge door has been opened, 5 minutes without interaction in the application on the smartphone or the centrifuge.
- Centrifuge with User login: If the current user is logged off (manually or automatically, depending on the selection of the combo box in the configuration menu)

The session management for the smartphone is directly attached to the user management of the LYNX centrifuge. This means that the smartphone session becomes invalid in case any user logs in or out at the LYNX centrifuge.

## Connection to a Network with active PoE

The user interface of the LYNX centrifuge is a PoE<sup>1</sup> enabled device. If it is connected to a PoE network port, it may remain active after the main power switch of the centrifuge has been turned off. While it is in this state, the following screens will be displayed at the centrifuge and in the Centri-Vue application:



After turning on the main power switch, the centrifuge will return to the normal state of operation. To avoid keeping the user interface in the active state, disable PoE on the used network port<sup>2</sup>.

<sup>1</sup> "Power over Ethernet" or PoE describes a system which passes electrical power along with the Ethernet cabling.

<sup>2</sup> Disabling PoE is recommended to prevent premature wear of the user interface display components.

# REST-Webserver

Port of REST-Webservers: 800 (TCP). The data is exchanged via defined JSON objects.

## Resource Overview

In the table below, the REST-interface provided methods are listed.

URL	Method allowed	Description
<device ip>:<port>/getall	GET	Information and data about the current state of the centrifuge
<device ip>:<port>/getstate	GET	Brief information, only state and name of the centrifuge

## Detailed description of the resources:

### GET <device ip>:<port>/getall

Query the current state of the centrifuge, supplies target and actual values.

Request:

No data

Response:

```
{
  "actualValues": {
    "ace": <ace value in x.xxExx>,
    "powerDown": <true orfalse>
    "rcf": <rcf value in xg>,
    "rpm": <rotation speed in rpm>,
    "state": <state identifier>,
    "temperature": <temperature in °C>,
    "time": <time format hh:mm:ss>
  },
  "error": <error object>,
  "name": <centrifuge name>
  "program": <program name>,
  "rotorName": <rotor name>
```

```

    "setValues": {
        "accelerationProfile": <profile number>,
        "ace": <ace value in x.xxExx >,
        "decelerationProfile": <profile number>,
        "rcf": <rcf value in xg>,
        "rpm": <rotation speed in rpm>,
        "temperature": <temperature in °C>,
        "time": <time in hh:mm:ss>
    },
    "user": <user name>
}

```

**<error object>:**

```

{
    "code": <error code>,
    "description": <error description in gui language>
    "title": <error title / type of error>
    "time": <error occurrence time in year/month/day hh:mm:ss>
}

```

If a value is not available, the value is set to zero. This can be used to distinguish between the following modes of operation:

- LYNX in RPM-Mode: *rpm* set, *rcf* contains the value *zero*
- LYNX in RCF-Mode: *rpm* contains the value *zero*, *rcf* set

The distinction of operation mode time, hold and ACE is mapped as follows:

- Time-Mode: *time* set, *ace* Value is *zero*
- ACE-Mode: *time* is *zero*, *ace* is set
- Hold-Mode: As in Time-Mode, but the value for *time* at *setValues* is also *zero*

**Examples**

Centrifuge in Time-RPM-Mode and an error occurred:

```

{
    "actualValues": {
        "ace": null,
        "powerDown": false
        "rcf": null,
        "rpm": 0,
        "state": "EReady",
        "temperature": 0,
        "time": "00:02:00"
    }
}

```

```

    },
    "error": {
        "code": 36575,
        "description": "Error Text",
        "title": "Centrigue Error",
        "time": "2015/03/23 03:32:37 PM"
    },
    "name": "My Centrifuge",
    "program": "",
    "rotorName": "F10-4x1000 LEX",
    "setValues": {
        "accelerationProfile": 9,
        "ace": null,
        "decelerationProfile": 9,
        "rcf": null,
        "rpm": 500,
        "temperature": 0,
        "time": "00:02:00"
    },
    "user": "Centrifuge User"
}

```

Centrifuge in Hold-RCF-Mode:

```

{
    "actualValues": {
        "ace": null,
        "powerDown": false
        "rcf": 0,
        "rpm": null,
        "state": "STOPPED",
        "temperature": 0,
        "time": "00:00:38"
    },
    "error": null,
    "name": "My Centrifuge ",
    "program": "",
    "rotorName": "F10-4x1000 LEX",
    "setValues": {
        "accelerationProfile": 9,
        "ace": null,
        "decelerationProfile": 9,

```

```

        "rcf": 1000,
        "rpm": null,
        "temperature": 0,
        "time": null
    },
    "user": ""
}

```

Centrifuge in ACE-RPM-Mode:

```

{
    "actualValues": {
        "ace": "0.00E00",
        "powerDown" : false
        "rcf": null,
        "rpm": 0,
        "state": "STOPPED",
        "temperature": 0,
        "time": null
    },
    "error": null,
    "name": "My Centrifuge",
    "program": "",
    "rotorName": "F10-4x1000 LEX",
    "setValues": {
        "accelerationProfile": 9,
        "ace": "2.22E02",
        "decelerationProfile": 9,
        "rcf": null,
        "rpm": 500,
        "temperature": 0,
        "time": null
    },
    "user": ""
}

```



**GET <device ip>:<port>/getstate**

Query status and name of the centrifuge.

Request:

No data

Response:

```
{
  "name": <centrifuge name>,
  "powerDown" : <true or false>
  "state": <state identifier>
}
```

**Example**

```
{
  "name": "My Centrifuge ",
  "powerDown" : false
  "state": "STOPPED"
}
```

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**[thermoscientific.com/centrifuge](http://thermoscientific.com/centrifuge)**

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